

WHAT IS CLAIMED IS:

1. A decoding device, comprising:

decoding unit operable to decode an encoded image signal which is obtained by encoding image frames which form an image signal, and additional information for creating an interpolation frame which interpolates the image frames based on a first motion vector which is a motion vector between the image frames;

motion vector detection unit operable to detect a second motion vector which is a motion vector between the image frames which are decoded; and

interpolation frame creation unit operable to create an interpolation frame based on the second motion vector, the image frames which are decoded, and the additional information which is decoded.

2. A decoding device according to claim 1, wherein

the additional information includes at least one of: an interpolation method for the interpolation frames with respect to the image frames; residual information of the interpolation frame and an image frame corresponding to the interpolation frame; a vector difference between a motion vector of the interpolation frame which is detected with respect to the image frames and a motion vector of the interpolation frame which is derived based on the first motion vector with respect to the image frames; and a motion detection method which is used for detecting the first motion vector.

3. A decoding device according to claim 2, wherein

the additional information further includes profile information for specifying a combination of information included in the additional information.

4. A decoding device according to claim 2 or 3, wherein:

the motion detection method is included as code information for specifying a

the motion detection method is included as code information for specifying a combination of parameters of motion detection; and

the motion vector detection unit detects the second motion vector based on the parameters of the motion detection specified by the code information.

5. A decoding device according to any one of claims 2 through 4, wherein, when the motion detection method included in the additional information cannot be performed, the motion vector detection unit detects the second motion vector using a predetermined motion detection method determined in accordance with the motion detection method included in the additional information.

6. A decoding device according to any one of claims 2 through 5, wherein the additional information is information produced for every interpolation frame.

7. A decoding device according to any one of claims 2 through 5, wherein the motion detection method in the additional information is information produced for every stream of the encoded image signal.

8. A decoding device according to any one of claims 1 through 7, wherein, when the additional information is not included in the encoded image signal, the interpolation frame creation unit creates the interpolation frame based on the image frames which are decoded.

9. An encoding device, comprising:
first motion vector detection unit operable to detect a first motion vector which is a motion vector between image frames forming an image signal;

additional information production unit operable to produce additional information for creating an interpolation frame which interpolates the image frames based on the first motion vector; and

encoding unit operable to encode the image frames and the additional information.

10. An encoding device according to claim 9, wherein
the additional information includes at least one of an interpolation method for the interpolation frame with respect to the image frames; residual information of the interpolation frame and an image frame corresponding to the interpolation frame; a vector difference between a motion vector of the interpolation frame which is detected with respect to the image frames and a motion vector of the interpolation frame which is derived based on the first motion vector with respect to the image frames; and a motion detection method which is used for detecting the first motion vector.

11. An encoding device according to claim 10, wherein
the additional information further includes profile information for specifying a combination of information included in the additional information.

12. An encoding device according to claim 10 or 11, wherein
the motion detection method is included as code information for specifying a combination of parameters of motion detection.

13. An encoding device according to any one of claims 10 through 12,
wherein
the additional information is information produced for every interpolation frame.

14. An encoding device according to any one of claims 10 through 12, wherein

the motion detection method is included as header information of a stream of the image signal.

15. An encoding device according to claim 11, wherein

the profile information is included as header information of a stream of the image signal.

16. An encoding device according to any one of claims 9 through 15, wherein,

when a residual between an interpolation frame created based on the image frames and the image signal corresponding to the interpolation frame is small, the encoding unit does not encode the additional information.

17. An interpolation frame creating system for creating an interpolation frame which interpolates image frames forming an image signal, comprising:

first motion vector detection unit operable to detect a first motion vector which is a motion vector between the image frames;

additional information production unit operable to produce additional information for creating the interpolation frame based on the first motion vector;

encoding unit operable to encode the image frames and the additional information;

decoding unit operable to decode the image frames and the additional information which are encoded;

second motion vector detection unit operable to detect a second motion vector

which is a motion vector between the image frames which are decoded; and
interpolation frame creation unit operable to create an interpolation frame
based on the second motion vector, the image frames which are decoded, and the
additional information which is decoded.

18. An integrated circuit device, comprising:

a decoding section for decoding an encoded image signal which is obtained by
encoding image frames which form an image signal, and additional information for
creating an interpolation frame which interpolates the image frames based on a first
motion vector which is a motion vector between the image frames;

a motion vector detection section for detecting a second motion vector which is
a motion vector between the image frames which are decoded; and

an interpolation frame creation section for creating an interpolation frame
based on the second motion vector, the image frames which are decoded, and the
additional information which is decoded.

19. An integrated circuit device, comprising:

a first motion vector detection section for detecting a first motion vector which
is a motion vector between image frames forming an image signal;

an additional information producing section for producing additional
information for creating an interpolation frame which interpolates the image frames
based on the first motion vector; and

an encoding section for encoding the image frames and the additional
information.

20. A decoding program for causing a computer to perform a decoding
method which comprises:

a decoding step for decoding an encoded image signal which is obtained by encoding image frames which form an image signal, and additional information for creating an interpolation frame which interpolates the image frames based on a first motion vector which is a motion vector between the image frames;

a motion vector detection step for detecting a second motion vector which is a motion vector between the image frames which are decoded; and

an interpolation frame creation step for creating an interpolation frame based on the second motion vector, the image frames which are decoded, and the additional information which is decoded.

21. An encoding program for causing a computer to perform an encoding method which comprises:

a first motion vector detection step for detecting a first motion vector which is a motion vector between image frames forming an image signal;

an additional information production step for producing additional information for creating an interpolation frame which interpolates the image frames based on the first motion vector; and

an encoding step for encoding the image frames and the additional information.